Description

This circuit is a diode–connected EPAD MOSFET with buffer amplifier set up in the non-inverting amplifier configuration. $V_o$ is equal to $V_T$ multiplied by the gain $G=1+R_B/R_A$. The drain $D_{N1}$ of the EPAD MOSFET is shorted to the gate terminal $G_{N1}$. When connected in this manner, this circuit produces a drain current $I_{ds}$ that flows through the MOSFET which increases exponentially with increases of $V_o$, with $I_{ds}$ versus $V_o$ characteristics similar to that of a forward biased diode. $V_o$ is set by the selection of bias resistor $R$ and the specific EPAD MOSFET part number. At a voltage about 55mV above threshold voltage of the EPAD MOSFET, or at 68μA $I_{ds}$, the $V_o$ tends to be temperature stable. At other voltage or current levels, the tempco changes from positive to zero to negative as a function of drain current. This tempco characteristic is determined by appropriate selection of resistor value of $R$.

For full schematic diagram and notes, please register and login at aldinc.com